tioned hereinabove for use as the seal **50**. The light beam source **34** is shown projecting a beam **38** which is detected by a light beam detector (not shown) positioned on the other edge of the faceplate **26**.

A further feature of the invention relates to the configuration of the raised border **48** and seal **50** surrounding the touch panel active area. As shown in FIG. **4**, the border **48** and seal **50** are not perpendicular to the faceplate **26** but are angled at an obtuse angle **74** of approximately **10°–15°**. In prior techniques where the border was disposed perpendicular to the display screen or faceplate, the light beam closest to the border would be reflected by the border. In some cases the reflection of the light beam from the border would circumvent the interrupting object and be received by the detector and it would be difficult to interrupt that particular light beam. The light, in effect, went around the object. A prior technique for solving this problem involved placing a "reflection fence" at the touch panel edge to obstruct the light beam. In the present invention, it has been found that by angling the border **48** and seal **50** combination by approximately 10°–15° from the perpendicular to the faceplate surface, i.e., an obtuse angle from the faceplate, the light reflecting from the strip from the light beams will be reflected into space and will not reach the light beam detector by circumventing the finger or other interrupting object. Thus, by incorporating this technique in accordance which the invention around the touch panel perimeter, a well defined, active touch panel area still exists; all the light beams are operational and no "reflection fence" structure is required.

As with the other structural elements discussed above, this angled border **48** and seal **50** are attached to the front bezel **14**. Since the faceplate **26**, the touch panel circuit boards **18**, **20**, **22** and **24**, including the light beam sources and the light beam detectors are all mounted on the bezel **14**, a subassembly is formed which may be removed as a unit. This facilitates trouble shooting and repair, and permits replacement of the bezel and associated electronics with a spare unit while the old unit is being repaired or maintained. In addition, the display unit **10** is completely shielded from electromagnetic energy interference and all shielding means are electrically connected to the bezel **14**. Electrically connecting the outer enclosure **12** to ground potential will provide a desirable path for electromagnetic energy interference. The above results in a fully integrated touch panel display system and with enhanced display viewing features. All operator controls are accessible from the front panel and no add-on electromagnetic energy shielding apparatus is required. This results in a simpler, easier to use and maintain system allowing the use of touch panels on shielded displays.

In the foregoing detailed description and in the accompanying drawings, certain preferred embodiments of the invention have been described. However, variations of the specific constructions shown may be employed without departing from the scope of the present invention. Thus, by way of example and not of limitation, various combinations of techniques are possible. For example, the faceplate **26** may have an embedded wire mesh, the seal **50** may comprise an electrically conductive coating and the bezel **14** may be formed of electrically conductive material. As another example, the faceplate **26**, seal **50**, and bezel **14** may all use the same electromagnetic energy interference shielding means, such as electrically conductive coating. Instead of using a separate border between the faceplate and the bezel, the faceplate could be formed of a single sheet of plastic bent or dished at the edges to directly engage the bezel, with the light beams passing through the outer stepped or beveled edge of the plastic sheet, and with the conductive coating or the conductive mesh, or both, extending from engagement with the bezel entirely across the dished or stepped faceplate. Alternatively, a single bezel member may extend all of the way from the faceplate to engage the outer housing or a single member may be formed which includes the faceplate, bezel, border, and seal. Accordingly, it is intended that the present invention include such modifications and variations and others unless the claims limit the invention otherwise.

What is claimed is:

1. An integrated, electromagnetic energy interference shielding, light beam touch panel system for use in conjunction with a display apparatus having a screen upon which information is displayed, comprising:

a substantially optically transparent faceplate disposed across the screen through which the screen may be viewed;

first means for shielding the faceplate against the propagation through it of electromagnetic energy interference;

a raised border through which the light beams pass disposed at a preselected position in relation to the faceplate to define an active touch panel area over the faceplate;

second means for shielding the raised border against the propagation through it of electromagnetic energy interference, the second means being in electrical contact with the first means;

a bezel mounted at the front of the display apparatus and adjacent the active touch panel area;

third means for shielding the bezel against the propagation through it of electromagnetic energy interference, the third means being in electrical contact with the second means;

an outer enclosure mounted around the sides, top, bottom, and back of the display apparatus and to the bezel; and

fourth means for shielding the outer enclosure against the propagation through it of electromagnetic energy interference, the fourth means being in electrical contact with the third means.

2. The integrated touch panel system of claim **1** wherein the first means comprises an electrically conductive wire mesh disposed across in the faceplate and coextensive therewith through which the screen can be viewed.

3. The integrated touch panel system of claim **2** wherein the electrically conductive wire mesh is embedded in the faceplate.

4. The integrated touch panel system of claim **1** wherein the first means comprises a substantially optically transparent, electrically conductive film disposed on the faceplate and coextensive therewith.

5. The integrated touch panel system of claim **4** wherein the film comprises gold.

6. The integrated touch panel system of claim **4** wherein the film comprises indium tin oxide.

7. The integrated touch panel system of claim **1** wherein the first means comprises forming the faceplate of electrically conductive material.

8. The integrated touch panel system of claim **1** wherein the faceplate has a roughened surface.